What is claimed is:

1. A method of preparing a quaternary ammonium hydroxide compound having the formula $(NR^1R^2R^3R^4)OH$, wherein

R^1 and R^2 are independently C_1-C_4 alkyl;

R^3 is benzyl or a C_1-C_{20} alkyl or a C_1-C_{20} aryl-sutstituted alkyl;

R^4 is a C_8-C_{20} alkyl,

the method comprising the step of reacting a quaternary ammonium compound having the formula $(NR^1R^2R^3R^4)^+ X^-$, wherein R^1, R^2, R^3, and R^4 are as defined above and X is Br or Cl, with a metal hydroxide in an aminoalcohol solvent to yield the quaternary ammonium hydroxide.

2. The method of claim 1, further comprising the step of removing any metal chloride or metal bromide formed by the reaction of the quaternary ammonium compound and the metal hydroxide.

3. The method of claim 1, where he reaction is performed in the absence of water.

4. The method of claim 1, herein any excess metal hydroxide is removed after the reaction.

5. The method of claim 1, wherein X is Cl.

6. The method of claim 1, wherein X is Br.

7. The method of claim 1, wherein R3 is benzyl or a C_1-C_{20} alkyl.

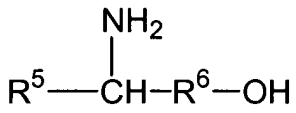
8. The method of claim 1, wherein R^1 and R^2 are methyl, and R^3 is benzyl.

9. The method of claim 5, wherein R^4 is a C_8-C_{12} alkyl.

10. The method of claim 1, wherein R^1 and R^2 are methyl and R^3 and R^4 are C_8-C_{12} alkyl.

11. The method of claim 1, wherein R^3 and R^4 are decyl.

12. The method of claim 1, wherein the aminoalcohol has the formula



wherein R^5 is hydrogen or a C_1-C_3 alkyl; R^6 is a bond or a C_1-C_3 alkyl.

13. The method of claim 12, wherein R^5 is hydrogen or a linear C_1-C_3 alkyl and R^6 is a linear C_1-C_3 alkyl.

14. The method of claim 12, wherein the aminoalcohol has the formula NH_2-$(CH_2)_n$-OH, wherein n is an integer from 2 to 6.

15. The method of claim 12, wherein the aminoalcohol is ethanolamine.

16. A method of preparing a quaternary ammonium carbonate having the formula $(NR^1R^2R^3R^4)_2CO_3$, wherein

R^1 and R^2 are independently C_1-C_4 alkyl;

R^3 is a C_1-C_{20} alkyl or a C_1-C_{20} aryl-substituted alkyl;

R^4 is a C_8-C_{20} alkyl,

the method comprising the steps of:

(a) reacting a quaternary ammonium compound having the formula $(NR^1R^2R^3R^4)^+ X^-$, wherein R^1, R^2, R^3, and R^4 are as defined above and X is Br or Cl, with a metal hydroxide in an aminoalcohol solvent to yield a quaternary ammonium hydroxide having the formula $(NR^1R^2R^3R^4)OH$; and

(b) reacting the quaternary ammonium hydroxide with a carbonate or bicarbonate source to yield the quaternary ammonium carbonate.